

DRAGON USER

International edition

The independent Dragon magazine

95p US\$3.25 June 1985

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classics**

**Machine code
for beginners**

Moon Miner

Adventure Trail

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HOW TO ORDER

TRADE ENQUIRIES We welcome trade enquiries and each order will be individually negotiated.

Websters drops Dragon software

Websters Software are at the biggest distribution companies in the country has stopped handling Dragon software.

This means that games for the C2 and S4 will become even more difficult to find in high street stores.

The situation from the high street stores point of view was summed up by Peter Frost, Goats Assistant Merchandise Controller who said that his company would continue to sell software for the Dragon computer for as long as there

was sufficient demand to justify it.

There is of course less room to carry software for discontinued machines, but we still have a limited range in our full specialist stores which are the top 100 stores in the Goats group, he said.

Websters have sold its stocks of Dragon software to John Penn Software which is offering it at reduced prices by post.

John Penn Software is at Great Farm Cottage Kingsley Road, Hants GU35 9WQ.

Games group

THE DRAGON Games Users Group is a new organisation designed to appeal to Dragon owners who enjoy playing games according to founders Oron Software.

The new club will offer substantial discounts on games from a number of well-known software houses. There will also be a bi-monthly newsletter which will feature advice, reviews, tips and an adventure column.

Although Oron Software is a commercial company producing various products for the Dragon Mark II users the company's founder promises that the GUG will be kept totally separate.

We are not using GUG as another commercial vehicle, he said. We aim to attract every player of the membership line on our main line.

Membership of the GUG costs £5.00 per year and further information can be got from Oron Software, 64 Prince Street Rochdale, Lancs OL16 6LJ.

Printer Control

MACEDWAM Consultants is a newly formed software house with a word processing package for the Dragon C2 and S4.

Printer Control gives the user access to a wide range of commands, including the ability to design character sets, write out graphics in text and graphics printing in the same line and much more.

William MacGowan who set up the company with help from the Enterprise Assistance Scheme, has written software for various machines, he believes that the major selling point of Printer Control will be its price.

At £15, he says, it has all the commands of much more expensive word processing packages and more benefits.

MacGowan Consultants can be contacted at 6 Arnhem Lane, Capenhurst, Nantwich, Lancs N13 3DS.

Diamond's return

SALAMANDER Software has two new releases for the Dragon — both just only adventures.

Frankie in Wonderland is the fourth in the Dan Diamond trilogy according to Salamander spokesman Lucinda Parker.

The White Cells of Death is a sequel to the Second World War adventure Kings of War.

Both games have apparently around 100 locations and will cost around £5 from Salamander Software, 17 Norfolk Road, Brighton, East Sussex BN1 3AA.

Dragon MSX

THE DRAGON MSX machine has finally made an appearance.

The machine, manufactured by Hong Kong based Regstar for Eurohard, the Spanish company which now makes the Dragon, conforms to the usual MSX standards.

It will be marketed in Europe by Eurohard, who took over the MSX licence originally granted to Dragon Data and GEC. No details on price have been released yet.

As a standard MSX machine, it will of course use the Z80 processor and will be totally incompatible with existing Dragon machines.

Dream

READERS who have been interested by the Dream editor mentioned in some of Phil Ark's articles in past Dragon Data might like to know that it is now available as Adaption from Computer software.

Adaption includes a monitor and a microcomputer and is available on tape or cartridge for the Dragon C2/S4. It can also be bought on disk for Dragon Dos.

Dragon 3" drives

CUMMIS has announced the launch of a new range of 3" disk drives for the Dragon.

The disk drives range from a single-sided 40-track drive to a dual-drive with two 80-track drives. Storage capacity ranges from 125 kilobytes at the bottom end of the range to two megabytes at the top end.

Scott Adams

FOR ADVENTURE lovers the name of Scott Adams needs amongst the greats — so if you read before Guinness's adventure that last every month, you will be delighted to hear the news that all of Scott Adams' adventures are now available for the Dragon from Adventure International in Birmingham.

The Classics Adventure series from 1 to 10 plus Secretman and THE HULK are the last two games in the Quasiprobe series based on Marvel Comic characters, cost £7.95 and are text only.

In addition Adventure International is selling the entire Mysterious Adventure range originally released by Chelms 8. Adventure International UK is at 50 Main Street, Birmingham B19 3TE.

Disk error

WE MADE an error in last month's Dragon DOS article by Phil Brooks. The first patch should read:

Patch: +000F 97
The 97 was unfortunately missed out.



NEW GAMES FROM BLABY COMPUTERS

TANDY & DRAGON



FINGERS (TANDY) — The ultimate platform game! It's just what the cat sat on by the best of the Blaby. Now it's the greatest (and biggest) 2D screen game. **DRAGON £3.99 TANDY £3.99**

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If you fancy yourself as a safe-cracker then mind on Thirteen screens of disappearing floors, elevators and will you find out for yourself! Help light-fingered Fred to collect his golden keys to open each safe JS

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Arcade addiction!

In a special review section Jason Orbaum looks at some classic arcade games for the Dragon

The King of the arcade

Program: The King
Supplier: Microdeal

ANY SERIES of reviews of classic Dragon arcade games has to start with the possibly the best Dragon game in the world.

The arcade game is Donkey Kong, a game in which you play Mario the carpenter who is trying to capture King Kong himself by running along a series of walkways, climbing a series of ladders, and avoiding barrels, bats and the mega monkey himself.

The King, released long ago in the minds of kids but still never been graphically surpassed and is quite simply the best version of Donkey Kong available for ANY micro-computer.

There is the usual phase of screen colour, along with up keys for forward or down keys for back player games, and three levels of levels (both better than the player's score is not right for the high score table which incidentally is done in true arcade style).

The game looks great, and handles better than any other on the market. But that I love that I'm preaching to the converted as, judging by the number of months the game had the top of the software charts, every Dragon owner it takes seriously seems a copy!



Manic Miner

Program: Manic Miner
Supplier: Software Projects

THIS GAME never made an appearance in the arcades. The original (written for the spei Spectrum) was written by Matthew Smith and has become one of the biggest sell-

ing games EVER released.

The recently released sequel Jet Set Willy is better than the game and the game is of a very high standard indeed.

The speed of the game, for those who have been fortunate enough not to come into contact with a Spectrum for prolonged periods, is to help Minic Willy through 20 caverns (actually the Dragon version is rumored to have two more caverns, but I have never reached them), collecting a variety of keys, diamonds, coins, and other silly objects whilst avoiding a set of equally silly monsters (the most tedious of which are the rain-making insects).

The game would be good value with four or five screens with 25 (25?) screens it is ridiculously good value.

But those amongst you (myself included) who can get lost from start to end on the Spectrum version will find a much more difficult task on the Dragon.

The game, whilst undergoing translation, has been made faster and more responsive. This coupled with the fact that the Spectrum version and just like do not always apply makes it almost the playing a new game!

The game, like its excellent successor is almost sure to become a classic and its sales on the Dragon show that Play Caster has taken Matthew Smith's formula and implemented it as well as the Dragon as the later did on the Spectrum.



Scramble

Program: Scramble
Supplier: Microdeal

ANOTHER Microdeal release and although not one of their best games this is still the best version of Scramble available for the Dragon 32 and plays almost as well as the arcade version.

The graphics are simple, it is not complex and the scrolling landscape goes by at the correct rate. The controls (move left, right, up and down) are handled by joystick or keyboard and the game, after the relatively short lead is gripping and addictive.

The only problem with the game is that some of the screens are disappointing copies, most notably wave three (the insects) which I found the most difficult in the arcades.

In this version of the game however instead of many tiny meters having almost the screen we are treated to two meters, a time flying across the screen, gone is the need to play low and forwards, you can actually now gain between these levels with surprising ease!

All the waves are present though the opening into the space-ships the rockets, the city and the moon is the new base. The trouble is that when you have reached the game it is no longer tedious for as difficulty increases and fuel disappears more rapidly there is a point where it is IMPOSSIBLE to survive, even if all fuel tanks are shot!

All things considered though it looks as though this is going to remain the best Scramble type game for the Dragon.



Rommel's Revenge

Program: Rommel's Revenge
Supplier: Design Group

YES FOLKS, this game was NOT written by Microdeal and yet it is excellent. It is a variation of a very well executed version of Battlezone, the 3D tank simulation that stayed such a hit in the arcades a few years ago.

This version has everything that the better version could ever ask for, superb 3-D graphics, variable difficulty (that you can even choose to choose your friends), selectable cars and even some to a choice of (please kindly) and joystick action.

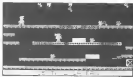
The on-screen play is identical to the arcade version of the same game, although the version is in black and green rather than green on black.

The only things missing are the two control systems that adorned the console in the arcades but this is a type that can be lived with and the new controls are just as easily mastered.

The game supports tanks, super-tanks, flying saucers, and missiles (launching bombs) but the background is only a night time view of a series of mountains.

All the usual polygons, like the landscape and it is just as easy to jump into them as it was in the original! The radar tips you can hold the enemy line and your own, and when you're hit the screen cracks beautifully.

This is quite simply a superb game, excellent programming.



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DRAGON/FLEX

delta 14b handset.

The complete Dragon joystick system

Voltmace, the UK's largest computer joystick manufacturer has done it again... The delta 14b handset and interface for the Dragon 32 or 64 microcomputers.

Voltmace's well known delta shaped joysticks can now be found with more buttons, 11 more buttons, individually programmable for more action, more control, more glory. These additions have not however let us lose sight of why we are the UK's largest manufacturer, our design.

Super sensitive fingertip control with fast, centre spring return action, means you always know where you are.

Tough, solid steel shaft, encased in a smooth nylon sleeve, handles even the roughest treatment and ensures hours of easy, fatigue free use.

New analogue potentiometers give corner to corner control, and total compatibility with all software currently available on the market. Switch joysticks as the word suggests can either be 'on' or 'off' and therefore cannot be used with programs that require analogue control, like flight simulators and computer aided design programs (C.A.D. 32).

Connection of the delta 14b handset to your Dragon micro-computer is made via the delta 14d interface. This plugs into the cartridge port of the Dragon with an external lead running to one of the joystick ports. No soldering or special technical

knowledge is needed to install either the handset or interface as everything simply plugs in.

Utilise the full potential of your delta 14b, (14 button



handset), with our superb C.A.D. 32 program, using 14bit graphics draw lines, circles, ellipses, boxes, fill in areas in four shades, scroll up and down (using joystick), get and put, to move or repeat shapes; plus two sizes of text graphics.

Unlike ordinary computer aided design programs C.A.D. 32 is really easy to use. The program is supplied on cassette with a printed overlay card for the 14b handset. Because the design functions are labelled and controlled from the handset, there is no

requirement for an on-screen menu which allows full use of the screen area for design work. you can now sit back and relax while your Dragon does the hard work. The screen dumps shown here were all produced with C.A.D. 32 using the delta 14b handset and interface. (Project X was designed and produced within 80 minutes). Finished or part finished designs can be saved to tape or disk and reloaded for printing or amendment. There is sufficient space here to describe fully everything C.A.D. 32 can do, so why not come along to the next 6800 show and see it for yourself.



Voltmace Limited.

Park Drive, Baldock, Herts. SG9 6ED

Telephone (0462) 694110



Delta 14b handset & interface £29.95

C.A.D. 32 (on cassette)

£4.95

Prices valid 1987 only

Prices include VAT and P&P

Cuthbert

Program: Cuthbert in the Jungle
Supplier: Microdeal

NO SELECTION of classic games could be complete without at least one mention of the ferocious gladiator clad hero of the Dragon series of course is Cuthbert.

This is the Microdeal (sorry folks!) version of a game long really called *Poleo Perry* and created by Activision for the Atari VCS. The game involves running a man around a jungle avoiding logs, snakes, scorpions, lizards and lots of other things in a quest for treasure.

During the game you are sure to jump across a log, so you're being warned, pulsing bits of quiddance, and use the "several" shortcuts under the jungle.

The game is a dream for MIB Traps, lizards, scorpions and, once again, there is no shooting!

The starting (P)CODE 76 is beautifully drawn so long as you have a colour television and the man runs, jumps, climbs and swings naturally



(even if he does tend to look like a stick insect on the last day).

The play is superb, but he proved for your joystick to lose it eventually, especially on the buttons.

An elegant mix of fun, strategy and arcade, and as the game has a time limit (20 minutes, although my three levels have never lasted that long) since the game is finished on attempt to beat your best time, game made — there is a replay that it can be finished in 16 minutes, 45 seconds or thereabouts.

If you don't have the rather aged game, then it is well

worth adding to the collection.



Frogger

Program: The Official Frogger
Supplier: Microdeal

YET ANOTHER Microdeal offering (I have a friend who believes that Microdeal are the only software house who produce games for the Dragon) which is definitely the best Frogger available for the Dragon.

Frogger was a game that

never really caught on in the arcade. I don't understand why I mean it's such a nice game, no shooting, no violent scenes, not disgusting, no ghosts running anywhere — well, maybe that's the reason!

This version of Frogger is in P)CODE 1 and uses the mode better than any other I have seen. It is colourful, whilst returning clearly and plays perfectly on keyboard (I would not advise the joystick option without still retaining joystick).

The object of the game is simply to keep a frog across a busy road, and then a busier river. To cross the road is simple, just avoid the cars, buses and so on. To cross the river is a lot more difficult.

You must take on the faces of turtles and on logs and then time the jump into one of your five homes at the top of the screen.

The game has progressive difficulty, a timer, five lives per game, one or two player option and can play more levels than "Garden Golem" (but then there aren't really that many).



Datapen

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Datapen

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It differs from all other lightpens available for the Dragon in that it is a far more sophisticated tool. The program (DART) clearly demonstrates the superiority of the Datapen.

Includes computing time on BBC 115.



The numbers game

Pam d'Arcy shows you how to handle the problems of machine code with a disassembler program for beginners

YOU KNOW how much you can learn from other people's BASIC programs. Many useful tips can be picked up. If a program doesn't work, you can work through the listing and hopefully correct it. What happens, however, when you come across machine code articles?

The ability to translate machine code values into meaningful instructions is a valuable, should a machine code article not appear to work to be able to cross-check the accuracy of the entered program data at a great asset. A plethora of new data and programming techniques can be discovered and routines be adapted to suit your own needs. The translation of machine code to meaningful instructions usually referred to as DISASSEMBLY.

Almost every value that can be held in one byte of memory (0-255; hex \$00-\$FF or \$FF-\$FFF) either alone or in conjunction with up to the next four bytes of memory depending upon the value, represents a particular machine code instruction. Not being machines ourselves, meaningful words are easier to remember than numbers. Motorola (the manufacturer of the chip at the heart of the Dragon) publish a list of recommended M68000-MC68000 or memory registers, for association with each machine code instruction. For example the mnemonic for ADD (multiply) is MUL. Armed with such a list, you could assemble and disassemble manually — I

didn't possess assembler software when I wrote *Tipster* (February 1984 issue).

However, the translation of machine code to machine code and vice versa is an area where the speed and accuracy of a computer really comes to us.

A beginner's disassembler

With a DISASSEMBLER entered values through registers or memory can be quickly established as the display should indicate entered codes one way or another. If a program in machine does not work and an assembly listing is provided, cross-checking a disassembler of the machine code in memory against the original will show up discrepancies. If these still appear to be no alternative but to work through the program logic, a disassembler will quickly translate the mass of numbers to an equivalent assembly source listing.

I have used three different disassemblers and there was an illustration of the output from a further type in August's issue. Some have very good points but each have flaws. The I believe are a disassembler, and are even at times, not letting for newer machine codes. Therefore after this one with the beginner specifically in mind.

(1) It is written in machine code so can co-exist with a BASIC program and be loaded anywhere in the machine so that you are not limited in the areas of memory that can be disassembled.

(2) Unlike some disassemblers (where it is obviously expected that the user has a printer), the disassembler does not lose the end of larger lines of the screen edge. (3) True screen paging is used — no 'accidental' scrolling of lines off the top of the screen because of unexpectedly long statements lines.

(4) A completely different approach is taken comprising disassembling some particular types of instruction to try and help rather than hinder newer machine codes.

Inputting the disassembler code

The problem with any disassembler is its sheer minimum size. To compile this (both in terms of keeping the article reasonably short and loading as much as possible with the accuracy of program entry) the DISASSEMBLER.HI is supplied as a HEX DUMP with a CHECKSUM. After every 12 bytes a checksum has many dimensions. The one is simply the sum (given and entered is decimal) of the ten preceding bytes. The BASIC HEX LOADER PROG.RAM (listing 1) also contains an EDIT facility to save you having to re-enter a complete line of data for an odd slip. Any

amount of data may be entered in a session, allowing you to pick up and put down program entry as suits your mood or convenience. I have chosen a load address of 12001 on the basis that this about equals the BASIC at the lower end and is also well below the area typically used for machine code.

Using HEXLOADER (listing 1)

Input the starting address for the code to be entered — 12001 at the default point of continuing from a previous session. Input each line of the **hex dump** (listing 2) as a stream of 20 consecutive hex characters (0-9 A-F). The space character between each pair of hex characters (= 1 byte) is for easier reading and checking and is not to be typed in. After entering the last pair of characters in a line the checksum is typed in and ENTER pressed if the data entered agrees with the checksum. The values are POKE'd into the designated memory locations and the screen prompts the next address. Pressing <CLEAR> at any time abandons any current line being entered and returns you to the START ADDRESS screen. Enter an address of hex to terminate the program.

Should the checksum show fail, EDIT mode is entered allowing you to use the left and right arrow keys to position the editor's arrow marker below any offending characters and to overwrite them with correct values. Go instantly positions you at the checksum value should that be where the error lies. When editing is complete press <ENTER> for the line to again be rechecked and so on.

At any time that you wish to cease program data entry mark using 2 to indicate the next point. Save the code (SAVE) (listing 2) 12001,12010,12001).

Simply entering you only need to save the data entered to the file to attempt use the first CSAVEM command avoids unnecessary errors. When you wish to continue program data entry, CLEAR the last saved disassembler program into the loaded the BASIC hex loader program RUN and input the marked next point as the start address.

Once the program data is fully entered as a further precaution, check the overall checksum by exiting from the hex loader and type in RUN2-enter. This will set up the values in locations 12001-12010 (note save and display the total 10 values about 20 seconds). The overall checksum is 220148. If it does not agree, RUN4? will proceed to tot up and display each line's checksum total. In this phase, once you spot a discrepancy, -R- not re-RUN the hex loader program (press any other key to continue the list up process).

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SOFTWARE FOR THE DRAGON

NEW

AMAZING ACTION

CONSTRUCTION **DATE**

**BUMPER BARGAINS
ALL AT £1.99 EACH**

[illegible]

INTERESTING ADVENTURES

11/11/2011 11:11:11 AM

THE PROOF The researchers used 100 participants while piloting DISCOVER. The study was run on the end of the telephone

OPERATIONS **APRIL 25, 1991**
 John Stuart Parnell in his search for the mysterious Schoonover and challenges the police.

REVIEW OF THE JAYA TEAM

ADDED EXTRAS

It is Printed by David

JUST COVER **EAL OF**

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Superior Birch 70-00 case manufactured
from heavy duty vinyl. Also carries 70-00-000
replacement.

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LANDMANNSTUFE
I've argued that you should grow within 40 miles of a major U.S. railroad system and have a telephone nearby.

JOHNNY BIRD **12-19**
 Major, 1st Cavalry Division, Vietnam
 1964-1968

SCRAMBLING AND AS 14-00
 20 COMPAQ SCRAMBLERS WITH LOGICALLY SCRAMBLED
 CIPHERS WITH EVEREST/2000 FOR THE SCRAMBLER



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NAME _____

[Return to top](#)

4 Once a clean bit of RAM is confirmed, press the program

CRASHM D8000 12001,10110,12000

Adjust the two lower CLEAR (Line 3) and checking routine addresses (Lines 42-47) if you wish to set up the program state at a lower address (you can always adjust the final loading position by CRASHM with either the CRASHM or the CRASHM+ mode). HEADLOAD may be given up for other similarity set up (see dump) - but they may not be 10 bytes per character. Adjust B=10 (Line 36) as appropriate - the program will cope with a maximum of 10 bytes per line without needing further adjustment. Should the checksum value be given in hex (its default is decimal), adjust using the standard BRISC coding

(or, on starting addresses presented in hex) of prefixing it with 401

Using the disassembler

How the DIS test by it out of itself DISDISDIS

The DISASSEMBLE PAGE address should be entered in the 5 prompt (see in the DIS prefix required). Once the program starts with address 22010, it should present you with a screen containing

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TRIPPLU!

This month's star game is Moon Miner from Steve Gathercole — so get your jet pack on, lunch break is about to start

(Full instructions for playing the game are included on the letters. Good luck!)

Unit 80 170 Royal and Police inspectors
with their own cars.

E-XHC 70000	German anyari
E-XHC 701 60	Flower
E-XHC 701 60	Small screens clear
E-XHC 70015	Flowers small screen

Author	Year	Country	Sample Size	Response Rate
...

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ES UP "
240 PRINT"ON THE FIRST LEVEL:"
250 PRINT"PRINT YOU MUST GET TO THE
TOP OF THE"
260 PRINT"WORKINGS AS QUICK AS POSS
IBLE"
270 PRINT"USING YOUR JET PACK"
280 EXEC 30000
290 PRINT@AB0,"PRESS ANY KEY":
300 AS=INKEY$:IF AS="" THEN 300
310 CLS:PRINT PRINT"UNFORTUNATELY THE
OPENINGS IN"
320 PRINT"EACH OF THE LEVELS KEEPS
MOVING"
330 PRINT"AND YOUR DINNER BREAK DO
ES NOT"
340 PRINT"LAST VERY LONG:"
350 PRINT"PRINT USE THE RIGHT JOYS
TICK TO MOVE"
360 PRINT"LEFT,RIGHT, AND USE THE
FIRE"
370 PRINT"BUTTON TO JUMP THROUGH THE"
380 PRINT"SMALL OPENINGS YOU MUST
NOT "
390 PRINT"BUMP YOUR HEAD ,YOU LOSE
POINTS"
400 PRINT"PRINT ONCE YOU HAVE COLL
ECTED A BOX"
410 PRINT"QUICKLY RETURN DOWN THE
"
420 PRINT"LIFT SHAFT TO THE RIGHT
OF THE"
430 PRINT"FINE WORKINGS"
440 EXEC 30000
450 REM**INITIALISE
460 DIM SL(3),SR(3),NO(3),LB(3)
470 DIM OL(3),RL(3),ML(3)
480 DX=10:DY=165
490 JO=JOYSTK(0):JB=JOYSTK(1)
500 SC=0:DIM BB(12):BX=4
510 LD=181:SC=0:HJ=0
520 GOTO 1970
530 PRINT@AB0,"PRESS ANY KEY",
540 AS=INKEY$:IF AS="" THEN 540
550 CLS:PRINT@16,"NEARLY READY"
560 PRINT@AB,STRING$(16,"*")
570 PRINT"PRINT IF YOU COLLECT ALL
THE LUNCH"
580 PRINT"BOXES BEFORE THE LUNCH B
REAK"
590 PRINT"IS OVER YOU WILL RECEIVE
A BONUS"
600 PRINT"DEPENDING ON HOW MUCH TI
ME IS"
610 PRINT"LEFT AND ADDED TO YOU SC
ORE"
620 PRINT"PRINT GOOD LUCK....."
630 EXEC 30000
640 GOSUB 2020
650 PHASE 3,1:CLS
660 REM**SET UP SCORER
670 COLOR 4:LINE 8,8 - (254,14),PSE
T,BF
680 SET(60,1) - (20,16),BB,G
690 COLOR 3:LINE 18,55 - (62,59),PSE
T,BF
700 COLOR 3:LINE 86,55 - (238,59),P
SET,BF
710 COLOR 3:LINE 0,100 - (140,100),
PSET,BF
720 COLOR 3:LINE 166,100 - (238,100),
PSET,BF
730 COLOR 3:LINE 0,144 - (20,144),P
SET,BF:LINE (2,144) - (238,140),PSET
,BF
740 COLOR 3:LINE 0,188 - (254,190),
PSET,BF
750 COLOR 3:LINE (238,50) - (238,190),
PSET
760 COLOR 3:LINE 0,40 - (254,190),PS
ET,B
770 S=4:R=33
780 FOR R=33 TO 40 STEP 5
790 PUT (S,R) - (S+13,R+10),LB,PSET
800 NEXT R
810 R=33
820 PUT (BX,DY) - (BX+13,DY+21),BB,PS
ET
830 PCOPY 1 TO 5:PCOPY 2 TO 6:PCOPY
Y 3 TO 7:PCOPY 4 TO 8
840 PRINT@AB0,"PRESS ANY KEY":
850 AS=INKEY$:IF AS="" THEN 850
860 T="STEVE":C="DONALD":D="MIC
KY":E="WINKIE":F="FROGLET":A:R:
A2=92:A0=R:AA=R:AD=R:AC=R
870 XX=6:YY=3:AS="SCORE":DRAW"C200
":GOSUB 2410
880 XX=160:YY=3:AS="HIGH":DRAW"C20
0":GOSUB 2410
890 XX=0:YY=3:AS="STR#(SC)":DRAW"C2
00":GOSUB 2410
900 XX=215:YY=3:AS="STR#(H)":DRAW"C
200":GOSUB 2410
910 SCREEN 1,0
920 PLAY"V21T30L30L3004L30L30L30L
30L3003L30L30L3004L30L30L3003L30L4
0L30L30L4L3003L30L30L30L30L30L30L30
0"
930 REM MAIN LOOP
940 TIMER=0
950 JO=JOYSTK(0)
960 EXEC 30015
970 TI=TIMER
980 IF JO>33 THEN GOSUB 1620
990 IF JO>31 THEN GOSUB 1010
1000 IF DY=50 AND DX>25 THEN GOSUB
1460
1010 IF TI>6000 THEN 1000
1020 IF LB=161 THEN GOSUB 1320

```

```

1030 GOTO 950
1040 IF SC=0 THEN RETURN
1050 PUT 100,11-100,151,00,PSCT:SC=
SC-1:XX=60:YY=3:AA=STR$(SC):DRAW"C
200":GOSUB 2410
1060 RETURN
1070 REM=TIME UP
1080 XX=35:YY=60:AA="LUNCH BREAK O
VER":DRAW"C200":GOSUB 2410
1090 FOR G=0 TO 4:EXEC 30100:NEXT
G
1100 FOR T=0 TO 500:NEXT T
1110 AI=SC:CLS:RND 100:PRINT000,"FI
NAL SCORE WAS":SC:
1120 IF AI=AG THEN PRINT000,"":IN
PUT "YOUR NAME":Z0 ELSE 1130
1130 IF AI>AG THEN AG=AS:AS=AA:AG=
AG:AG=AG:AG=AI:F=50:FF=00:DX=00:C
=10:T=20:GOTO 1150 ELSE IF AI<AG
THEN AG=AS:AG=AA:AG=AG:AG=AI:F=5
0:FF=00:DX=00:C=20:GOTO 1150 ELSE
IF AI=AA THEN AG=AS:AS=AA:AA=AI:F
=50:FF=00:DX=20:GOTO 1150
1140 IF AI<AS THEN AG=AS:AG=AI:F=
50:C=20:GOTO 1150 ELSE AG=AI:F=2
0
1150 PRINT010,AG:BY " T0:PRINT0
20,AG:BY "C0:PRINT030,AG:BY
"100:PRINT040,AG:BY "100:PRI
NT040,AG:BY "F0:
1160 PLAY"02T5V15CV10CV5CP100V10FV
10CV5FP200V15CV15CV5CP200V100V100V
50V15FV10FV5FP200V100V100V50CP100
V15CV10CV5CP"
1170 PRINT000,"ANOTHER GAME (Y/N)
":
1180 AA=[NKEY]:IF AA="Y" THEN FOR
M=1 TO 32:EXEC 30100:NEXT M:PRODEC
3,1:GOTO 1000
1190 IF AA="R" THEN CLS:END
1200 GOTO 1100
1210 REM ***BONUS
1220 FOR G=1 TO 3
1230 SC=45:YY=65:AA="BONUS BONUS":
DRAW"C400":GOSUB 2410
1240 EXEC 30100
1250 SC=45:YY=65:AA="BONUS BONUS":
DRAW"C100":GOSUB 2410
1260 NEXT G
1270 GO=INT((3000-T0)/50)
1280 FOR T=1 TO 50
1290 SC=SC+1
1300 EXEC30100
1310 PUT 60,11-100,151,00,PSCT
1320 XX=60:YY=3:AA=STR$(SC):DRAW"C
200":GOSUB 2410
1330 NEXT T
1340 IF SC=1 THEN HI=SC:GOTO 1700
1350 GOTO 1000
1360 PUT 217,11-1247,151,00,PSCT
1370 SC=215:YY=3:AA=STR$(HI):DRAW"
C200":GOSUB 2410
1380 GOTO 1000
1390 REM==GO AGAIN
1400 PCOPY 5 TO 1:PCOPY 6 TO 2:PCO
PY 7 TO 3:PCOPY 8 TO 4
1410 IF SC=HI THEN HI=SC
1420 SC=100:DX=105:SC=0:L=0:Z=0:R=3
3:LD=101
1430 TIMER=0
1440 GOTO 070
1450 REM==PICK UP LUNCH BOX
1460 IF L=0 THEN PUT 10,10-10+13,R+
51,NO,PSCT:GOSUB 250,3:PUT 10,10-10
+10,R+51,NO,PSCT:R=R+3:PUT 100,11-1
00,151,00,PSCT
1470 IF L=0 THEN SC=SC+10:XX=60:YY
=3:AA=STR$(SC):DRAW"C200":GOSUB 24
10
1480 PUT 100,10-100+13,10+211,00,P
SCT
1490 L=1:DX=25
1500 RETURN
1510 REM==DOWN LIFT
1520 PUT 100,10-100+13,10+211,00,L,P
SCT
1530 DX=DX+10
1540 PUT 100,10-100+13,10+211,00,P
SCT
1550 DY=DY+0
1560 PUT 100,10-100+13,10+170,00,
PSCT
1570 IF DY>105 THEN 1590
1580 GOTO 1540
1590 IF DY=105 THEN PUT 100,10-10
0+13,10+211,00,PSCT:DX=DX+10:DY=10
5
1600 IF SC=0 AND L=1 THEN PUT 10,LD
1-10+13,LD+00,LD,PSCT:LD=LD-0:Z=1:
L=0:RETURN
1610 REM==MOVE RIGHT
1620 PUT 100,10-100+13,10+211,00,P
SCT
1630 DX=DX+0
1640 IF DX=222 AND 10+211>50 THEN
M 10:222
1650 IF DX=222 AND 10+211<50 THEN
M 10:225:GOSUB 1530
1660 PUT 100,10-100+13,10+211,00,P
SCT
1670 IF PEEK 165200=126 OR PEEK 165
200=254 THEN 1700
1680 RETURN
1690 REM UP RIGHT
1700 PUT 100,10-100+13,10+211,00,P
SCT
1710 FOR T=0 TO 1:EXEC 30015:NEXT
T
1720 PUT 100,10-100+13,10+0,00,
PSCT
1730 IF PPOINT 100,10-100+01 THEN
GOSUB 1040:PUT 100,10-100+13,0

```


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YET ANOTHER internal time passing this month. Handed by Moore, Revere of Gordon 400 Adventers (SD30?) never apologized for his poor English (though not as poor he hasn't been able to finish off Black Saracens on which he offers a few clues including what to do with the door that's floated up (then being printed incorrectly) FROM MAHWA LG HTW LIAH (LUP). Thanks for that clue, Moore, and I can assure you that your English is much better than my Hebrew.

Mind you, I think even my Hebrew is better than my Norwegian, so just as well reader Robert Black of Skidnawest in Norway speaks good English, too. Now Norway might be famous for fjords and pine trees, but Norwegians are a little less on the ground so Robert's having trouble getting out of Level One of Thryngvanesen. Travel from Norway (Shepherd). I've asked Heppel to be a bit more specific as the 3-D graphics more can be regulated with a mixture of plotting and pleading, though only to the even harder second level. I made it to the top of the tower but the craggy Gault saw me off with no bother. If all else fails, I shall hand Robert over to the man with the gun, Richard Shepherd himself.

A recent letter from Touchmaster confirmed that they'll soon be extending their range to take in the Adventure Informational & Mathematical Adventures' series, recently taken over by A.I. (John Charnal & I with a welcome reduction in price at the same time to £7.95. Touchmaster will also be handling adventure titles from other publishers, such as Nemesis's *The Trail of Arnold Blackwood* (an adventure I do recommend) and if you've sampled the Arnold style of humor and liked it then you'll be pleased to hear that Nemesis is currently converting another from the Arn series to the Dragon. More details when it's been done.

Ken High of SD Latitudes (Ginn) London SD4 offers help to anyone with the Den Diamond (ology or Ring of Chatterbox though he himself can't get out of the prison or Black Shadow. He says he's broken the minor secret series to no effect and can't think of any other possible aid. My advice is GALTHERY OFF MOOD TYPST. Letters from him and others show that there's no such thing as an easy or difficult adventure, because what puzzles one

person seems to be a doddle to someone else, while another title might have the opposite effect.

A common problem is how to cross the water and the mountains in Ring of Chatterbox which I'm asked this month by Wesley Curtis of 4 Kings Drive Chesham, Kent. Galt 1000 Wesley should obviously write to Ken High, while two lesser-known Adventers are putting Duncan Watt, Rowland and Gault of Doom in the corner. Gault's an inn lodge with a rope but can't make use of it, while the latter's first having trouble with the moose. Typical adventure's solution, so if you can help Gault's out write to Ken at Glen 104, East Gordon, Northampton Northampton.

Yes, the scraps we adventurers get sometimes into. Galt's Enigma sounds like quite a straightforward person living at the typically English address of Ingelton, 1047 Ash Tree Close, Southwell, Notts, and yet here she's chasing secret agents in her spare time, thanks to Operation Arthur from Gault's. Galt's has managed to rescue the agent in Manchester, and started herself like of Henry in Southampton (no nothing to do with all those sailors there), but she's stuck on the following. Where to find the code for the Welsh computer in Dundee, where to find the website for the agent in Plymouth, where to find the one who is dead, dumb and blind where to find the son of the agent in a certain university town, and how to enter the shed near York Island without being blown up. And you thought you had problems. If you can help Galt's with her last contact her at the address above.

Steve Blazden of Jet Lane in Ruggby has an appropriate address for an adventure player. Ethics I ought to be writing four pages every month, including a full-page adventure feature. Well I'm sorry, though it might be five to six full-page every month on Dragon adventures, though I used Philip's letter to DROP HINT to the editor who has agreed to add to space when possible. Phil is also kindly send me a copy of Dragon Data's help sheet on Archetype and the Mootur, which is full of limited help but I will happily pass it copy on to anyone who wants it, provided they endorse it.

Having dealt with several old problems, on to an adventure that's sure to create

some new ones, and that's Gwalt's of Doom from Manchester, a machine code, text-only adventure of over 100 locations, being sold in the low price of £4.95. Though that's no reflection at all on its quality. The story is that you are in a network of tunnels in a mine complex, and all you have to do is find your way out. You begin just inside the entrance, with the south (tunnel) behind you collapsed and your only safe route being to the north. A suspended adventure never goes anywhere without having a quick INVENTORY, and this reveals you to be carrying a flashlight. At first we won't have to waste time looking for our old head-lamp. The screen is split into three sections, the top two thirds being description, while you can see plus inventory, and at the bottom right is a mini compass, which displays your available maps — a real idea. A large part is a room for your inputs and the responses.

Venturing into the mine proved at first one of my assumptions wrong, straight away for in a small area were prospectors, a black sheep, a pig, a broken lamp and an oil drum. Obviously the flashlight and going to last forever, so how do we fix the lamp? The last chest is locked so perhaps there's a key in the air (GALTHERY 1047). A contents prompt. So much for that. Bought a key by picking the lock put in case. In a dead-end I found some bones, which cheered me up, and eventually a skeleton which didn't. Well, got it first. Further things around uncovered some other familiar objects, the good old rope and the good old matches for instance, along with eggs that an earlier object was the good old red henning — no, not a potted henning. By now I was running out of hands, and my flashlight was growing dim, then before you knew it I lost darkness. Like all know what happens if you move round in the dark, too, don't we? Wrong again! Here you can continue to move, so if your map is accurate, survival might be possible, as indeed might a little more light.

For a later Gwalt's of Doom is extremely worth grabbing, with its quite extensive vocabulary, SAVE and LOAD, RELOAD, GET EVERYTHING and DROP EVERYTHING commands (SCORE, but of 99), and an inventory that actually takes account of the weights of different objects. Let a just hope I can get a good way into the caverns. ■

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If you've got a technical question write to: Brian Cudde. Please do not send a SASE, as Brian cannot guarantee to answer individual inquiries.

Dragon Answers

Oh Brother!

Can I connect a Dragon 64 to a Brother SP-22 Typewriter printer via the RS232C ports (that is do they both have the same connector)?

A.S. (Buckley Scotland)

I CAN'T see any problems in connecting the RS232C ports together, providing you can obtain, or make a suitable lead. You will need to set up the baud rate of the Dragon's port to the correct value, given in the printer manual. Use the PMS2 ports on the Dragon 64 supplement. To print out on the RS232C port either then the converter port type PMS2 1523.1. You may also need to type PMS2 230.2 if the printer does not function correctly.

SN error

I VE GOT a Dragon 64 and recently I bought a game called Two Lost a Castle by Protektor. After loading it I got an SN error line 9630. Do they have there is a code statement. Could you please tell me how to correct this line?

Kenneth Stuart Scotland

THIS HAS come up before, but again a number of letters have come in regarding this problem on various games running on the 64, written to line 25. The system error is caused by the line having an extra character in the even number — eg 2—(25)0010. This was necessary on the 32 but on the 64 it should read 2—(25)000. You can simply add the offending line and re-run the program in most cases.

Software programmers might like to use the following lines to test whether the program is running on a 64 or a 32:
100 V%0—(25)0010(25)000000
—(25)0000(25)0000
V%0 V%0 64 Then Dragon 64 PMS2 (Dragon 32)

INKEY

I WOULD like to find out properly how to enter the keyboard in some files. I know that it has something to do with INKEY but would like to know if there are any standard lines for all programs.

V. Edwards
Perth, Scotland



THE FOLLOWING few lines can be inserted to check for the four arrow keys, the command following the THEN could either be a goto if it is desired otherwise to handle the key press.

100 IF (INKEY) = (CHR\$(1)) THEN let arrow pressed

101 IF (INKEY) = (CHR\$(2)) THEN left arrow pressed

102 IF (INKEY) = (CHR\$(3)) THEN down arrow pressed

103 IF (INKEY) = (CHR\$(4)) THEN up arrow pressed

The code also checks for the arrow keys plus shift being pressed by substituting these numbers in the above THEN statements 21 10, 31 35

Double up

I HAVE a Dragon Data Single disc drive and I would like to ask you if you could possibly suggest something that I could have a second drive fitted to.

I ideally I would like to have the separate drives, such as possible as I am currently using the Data for Word Processing and the like.

Paul Graham
Dumfries
Dumfries

COMPATIBILITY the new Dragon distributors can supply a second disc drive appropriate for the 64. Fitting a second drive is a simple enough task for just about anyone at home with a screw driver. It just involves removing the cover from the drive and pulling two plugs into the second drive. It requires no soldering.

?FM error

I AM having a trouble with a Basic program that was saved to tape

using CATALOGUE. As it was a Basic program, I tried to CLoad it. Then the CATALOGUE resulted in an FM ERROR. Trying to load it as a binary file failed. Could you tell me how to load it as it is the only copy of the program I have?

Robert Gooding
Inver
Ayrshire

I AM afraid the program has probably been saved incorrectly. As the correct extension for the Basic save routine is (4715), not (4075). You could use the following assembly routine to load in the file as it was saved, and providing the Basic is not corrupted, you can then save the file using CATALOG. It is worth a good idea to use ROM routines to do things like save programs when the CATALOG command is adequate.

100 (SABH) ,READY FOR INPUT
LDC #4715
STC 126

100 (SABH) ,GET HEADERS
LDC 25
LDR# STC 126
PMS2.5

100 (SABH) ,READ A BLOCK
PMS2.5
LDC 126
PMS2.5

100 (SABH) ,READ A BLOCK
PMS2.5
LDC 126
PMS2.5

100 (SABH) ,READ A BLOCK
PMS2.5
LDC 126
PMS2.5

100 (SABH) ,READ A BLOCK
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100 (SABH) ,READ A BLOCK
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100 (SABH) ,READ A BLOCK
PMS2.5
LDC 126
PMS2.5

100 (SABH) ,READ A BLOCK
PMS2.5
LDC 126
PMS2.5

ing, as I don't possess an emulator.

let let

70 Whithorn Avenue
Aberdeen DD6 6JH

IT WOULD take up most of this page to describe all the additional graphics modes which the V90 is capable of, but which Basic does not support directly, a mode called Super-Graphics 24 is generally regarded as the most useful and is described here. The mode allows all nine colours to be used as well as text and 64 by 160 graphics. The simplest way to enter this mode from Basic is with the following line:

10 PMS2 4715(25)0010 10
Basic is set up PMS2 start with the PMS2 4715(25)0010

20 PMS2 4715(25)0010 10
4715(25)0010 10

The colour is line 25 are set actually according with the PMS2.5 statement, but are included for completeness. All access to this mode must be by pointing to the screen (starting at 16384). Basic cannot print or print on the screen in this mode. You must first to take a look at a program called SuperGraphics, it which sets statements to the level to control some of these basic modes, which is located at LocalOne Software 25 Fraser Street, Paisley, Lanark PMS2.5

SAVE****

I HAVE had my Dragon Dos save programs. When saving one of my last programs, I accidentally pressed enter when only typing SPACE. I now found a way to load it but not to save it. Can you help?

Kevin Dutton

25 Dinning Road North
Dunfermline
Northampton DN16 2JL

IT IS an interesting point you have raised here. The only way to load off a program saved with SAVE is to change its name by direct access to the directory track — track 36 if you do attempt this using SAVED and SAVED1 I suggest you use a backup copy of the disk as one mistake could corrupt the drive and lose all your files. What you really need is a Backup/Save program, but I have not seen one for Dragons.

It is worth noting that programs saved with SAVE — can be loaded and run but effectively not listed. This does have its uses.

Semigraphics

COULD you please inform me how to obtain the additional screen graphic modes not supported by Dragon Basic, by use

Enter competition or Hulk smash!

Gordon Lee sets the competition, Adventure International provide the prizes

READERS who regularly attempt the competition in *Dragon User* will have found instances where the standard mathematical function of the *Dragon* is inadequate. For example, in the March competition it was necessary to compute the exact value of factorial 52, and the following month the solution relied on calculating successive powers of 2 and 8 accurately in order to determine which of these powers can exceed any given

In the case of the powers of 8, to obtain the values up to 8^{10} it is clearly not sufficient to write a program such as

```
10 LET T=1
20 FOR N=1 TO 10:
30 LET T=T*8
40 PRINT T
50 NEXT N
```

If this program were to be run it would work satisfactorily for a few steps and then two things would happen. Firstly when N reached a value of 10 the computed value of T would be given as 1.22070313E-09. This is due to the computer switching to an exponential form of notation once that the value (being handled) has exceeded nine digits — in other words is greater than 10^9 .

The second thing that will happen if this program is left to run is that an OV (overflow) error will occur after step 34, due to the number being calculated being too large for the computer to handle. We also have the additional problem that the computer is also only able to hold a dozen or so significant digits in a calculation and so although it keeps a record of the absolute magnitude of the number, the precise value of the nine digits is lost for ever. It is a sad fact that the mathematical capability of the *Dragon* (even-odd real) is not quite better than that in a cheap pocket calculator.

However, rather than accept defeat, we can easily devise a method to overcome the difficulty. In the case of the problem mentioned, the full value of the powers of 8 up to 8^{10} can be handled using the program listing given. A quick examination of the listing should make its mode of operation clear. Note how the powers of 8 are stored in strings rather than as numeric variables, which, as has been shown, are inadequate for numbers of the magnitude cited. Each digit is the extracted in turn from the string, a simple mathematical operation performed and the resulting value reinserted to string form. Note the use



of the Carry variable, where necessary. In this way the full value of 8^{10} with its 70 digits is easily manageable, and there is no reason why even greater powers could not be calculated by modifying the pro-

gram to accommodate hundreds, or even thousands, of digits. One way would be to allow string entry, each variable containing say 250 digits.

This month's competition is to devise a program using the ideas of the one already mentioned, which will compute square roots. The program should allow an input of any number of up to nine digits, and should be able to calculate the square root of that number to a high degree of accuracy, the limitations only being the amount of memory available for storing the numbers generated. The length of time that the calculation takes will also, presumably, have a bearing on the extent to which the competition can be carried out.

The method of calculation chosen should be at the competitor's own choice and should be outlined briefly. The program should be written in BASIC and a full listing enclosed, together with an attached list of program notes, where appropriate. Apart from accuracy, which will be tested for by calculating a known value, entries will be assessed for brevity, clarity and speed of operation.

Good luck!

Prize

THIS MONTH'S prize is something rather special — the person who sends in the best solution, in the opinion of our quiz expert Gordon Lee, will win not one but 10 games!

Adventure International are donating one copy of each of the *Secret Adams* adventures as a prize for the most perceptive participant — that's *Classic Adventures* 1 to 13 inclusive, plus *Spiderman* and *The Hulk*.

In addition, the 25 runners-up will be receiving a copy of *Classic Adventure* 13 — *Claymorgus Crawl*.

That's a grand total of 40 games to be won!

Rules

ENTRIES for this competition should be clearly marked Competition Corner June on the envelope, and should include your

name and address in block capitals.

Your entry must arrive at *Dragon User* by the last working day in June. The winners will be named in the September issue of the magazine.

March Winners

THE WINNERS of our March competition were Zhival Chen of Bristol, Steve Worley of Ilford, Raymond Woods of Barking, M. Layland of Greenwich, C. Jones of Llanwrth, T. Potter of Chislehurst, Robin Tolman of Sale, Ian Mitchell of Llanidloes, J. J. P. Beaumont of Largs, M. Fischer of Maidenhead, Ned Skelton of Thornbury, Simon Harris of Crampton, J. Hewitt of Hixon, P. Dennington of Strood, and H. van Gestel of the Netherlands. Each of them will be receiving a copy of Microdeal's *Worlds of Fight*.

FOLLOWING THE EXEMPLARY BACKTRACK – INCENTIVE NOW PRESENTS FOR THE DRAGON

BY JOHN MARTIN AND RICHARD MCCORMACK



1000

The *Laurel* of Kite, a snail-tortoise and white-rabbit, and mayhem are common place. Readers from the east swoon in and disavow the countryside, pained by the hilarious Pekingese (from Veracruz) and misapprehend the cult of mad monks and dog the beautiful, though utterly mad, Princess Delilah.

Unusually condemned for a murder you did not commit, you have been offered the chance of escaping the hangman's noose by undertaking a dangerous quest. Naturally you accept, but to ensure your loyalty to the cause, the Lords have placed a magic warning bug on your mouth, designed to keep his screaming a barren witness to all the heinous acts of his cowardice.

Posed at the brink of the unknown village you stand alone with the daunting mission before you. With just a handful of corn

Your task is to travel beyond the mountains and then underground via stars temple to the ultimate confrontation with Vex (revel) penetrating his inner sanctum. Beyond the Quarters of the Gates.

THE THREE ISK ADVENTURES
TOGETHER FORMING THE
CLASSIC AND COLOSSAL
ISK TRILOGY

[illegible]

TEMPLE OF VRAN
THE FINAL MISSION

[illegible]

Please write me (see below) on all related health-care issues and comments

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